

# STRATFORD HEALTH DEPARTMENT



## **Raymark Groundwater Contamination and Indoor Air: How Sub-slab Ventilation Will Help Affected Homes**

*The Connecticut Department of Public Health, in cooperation with the U.S. Environmental Protection Agency (EPA) and the Stratford Health Department, recently conducted a Health Consultation to study the public health issues that may arise in your neighborhood due to contamination of groundwater that is flowing from the old Raymark industry site on East Main Street. It has taken many years for chemicals contained in Raymark contamination to seep into the groundwater that flows beneath your area. These chemicals are known as volatile organic compounds (VOCs). VOCs can separate from groundwater into the gas phase and evaporate into the tiny open spaces between soil particles. This "soil gas" can enter homes through the basement, crawl spaces, holes in the walls or floors (where utility services enter your home), sump pump wells, and foundation cracks, where it can adversely affect indoor air quality.*

*During the last four years, EPA has collected soil gas and indoor air samples from a number of homes in your area. The indoor air in some of these homes was found to contain varying levels of two chemicals, 1,1-dichloroethylene (1,1-DCE) and trichloroethylene (TCE). Both of these chemicals may pose a health threat under certain conditions. Sub-slab ventilation systems were installed in these homes that had high concentrations of these chemicals. The systems are effectively removing 1,1-DCE and TCE from indoor air. This is the same method used to remove radon gas from homes. Because it is not known how many or which particular homes may be affected by Raymark contamination in the future, the CTDPH recommends installing sub-slab ventilation in all of the homes located within the area that is or may be impacted by groundwater contamination from Raymark chemicals. EPA has agreed to this plan.*

This fact sheet was created to answer some of the questions you may have about the sub-slab ventilation and the health issues associated with Raymark groundwater contamination.

### **What are potential health effects associated with exposure to these kinds of chemicals?**

It depends on the concentration to which you're exposed and how long the exposure lasts. The main effect from breathing high levels of 1,1-DCE is on the central nervous system. Breathing low levels of 1,1-DCE for a long time may damage your nervous system, liver, and lungs. There is a possibility that 1,1-DCE may cause cancer, but scientific studies are inconclusive as to the level of exposure to 1,1-DCE that would be associated with cancer.

Breathing large amounts of TCE for long periods of time may cause nerve, kidney, and liver damage. There is also some scientific evidence that high levels of TCE may cause liver or lung cancer. Other adverse health effects may occur from drinking water

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containing TCE, but since Stratford residents in the area where these chemicals have been found do not drink well water, there is no danger of exposure via this route.

Indoor air samples taken over the last several years have shown that exposure levels to 1,1-DCE and TCE in your neighborhood during this period have been low relative to levels that have been seen to cause health effects in scientific studies. For example, for 1,1-DCE, the highest level found in the basement of a home was 3700 times lower than the lowest level at which health effects are seen. For TCE, the highest level found in the basement of a home was approximately 330 times lower than the lowest level to show health effects.

There is evidence suggesting that during the first two years of life children may be at a greater risk than adults for developing cancer following exposure to cancer causing chemicals. This is a key reasons why it is important to prevent even small exposures to 1,1-DCE and TCE. Installing these systems is a prudent public health measure to reduce VOCs in indoor air.

## **How does sub-slab ventilation work?**

Sub-slab ventilation systems are the systems that are typically used to reduce radon levels in the home. They work by collecting gases released by the chemicals from under the slab and redirecting it outside, where it is dispersed into the atmosphere without posing a health threat. EPA and CTDEP are currently investigating the most effective design for the systems to be used in Stratford, but in general, these systems utilize a fan to draw out the gases from below the house.

## **Who will install the system and who will pay for it?**

Contractors selected by CTDEP will install the systems. CTDEP and EPA will pay for these costs, and if system repairs are needed at any time in the future, CTDEP will pay for them. The only cost to the homeowner will be the electricity used to run the system.

## **How will I know the system is working properly?**

Performance testing inspection and quality assurance checks will be conducted throughout the installation process. The state will periodically check and maintain the systems over the long term.

## **When will the systems be installed?**

Installation is expected to begin in the Fall, 2003.

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## **What if I already have a radon system in place?**

If you already have a radon system in your home, it should be operated continuously to reduce chemicals from Raymark contamination. Your system will be checked to make sure it is working properly and improvements will be made if necessary.

## **What if I don't want sub-slab ventilation installed in my home?**

You are not required to take advantage of this program, but you are strongly encouraged to do so. If you choose not to allow installation of sub-slab ventilation, your property may be identified at the state and local level as having a potential health/environmental problem. The Town has an obligation to provide such information to those who inquire about properties for which environmental/health data is contained in public files. If you decide to sell your home, you may be required to disclose this information to potential buyers. Please understand that if you decline the present offer to have sub-slab ventilation installed in your home for free and then change your mind in the future, you will be responsible for the costs of installing and maintaining the system.

## **What about past exposure? Is there any way to test for adverse health effects due to past exposure?**

There are tests available to measure 1,1-DCE in the breath, urine and body tissues, but since this chemical leaves the body rapidly, these tests are only useful if exposure took place within the last few days.

The same holds true for TCE and several of the compounds into which it breaks down. These can be measured in the breath, urine or blood, but only after recent exposure to fairly large amounts of TCE. However, other chemicals break down into the same products as TCE, so tests that detect these breakdown products can't determine whether the exposure was to TCE or another chemical. Also, there's no test to tell if you will have any adverse health effects in the future due to exposure to 1,1-DCE or TCE.

## **Why wasn't this plan put into effect as soon as indoor air contamination was found in some homes in 2000?**

The movement of contaminants from groundwater to indoor air is complex. Experts are continually reexamining the science of this process and gathering information that sometimes means revising the levels of contaminants believed to put people at risk. EPA keeps track of these changes and has conducted detailed and comprehensive groundwater, soil gas and indoor air testing in the neighborhood over the past four years.

When elevated levels of VOCs were found in some homes in 2000, not enough was understood about how widespread the problem was or what would happen in the future. Further testing, including the most recent tests in 2003, provided CTDPH with the

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information needed to better understand current and potential future risks from VOCs present in groundwater. Based on these results, CTDPH recently concluded that the wisest course of action would be to install sub-slab ventilation systems in all homes potentially at risk as a preventative measure. Meanwhile, systems that were installed in several homes in 2001 and 2002 have successfully reduced levels of VOCs in indoor air.

## **How will the presence of groundwater contamination or the fact that I have a remediation system installed in my home affect the market value of my house?**

Property values are most appropriately discussed with real estate professionals knowledgeable about the local economy and other conditions that may influence the value of your home. Keep in mind that the presence of a remediation system in your home to reduce exposure to chemicals found in indoor air may help to avert problems with future property transfers.

If you wish to discuss this matter further, **Elaine O'Keefe**, of the **Stratford Health Department (Tel. (203) 385-4090)** is the primary contact for health-related issues. **Ron Curran (CTDEP)** is the primary contact for engineering and other technical issues (**Tel. 860-424-3764**). Below are several additional contacts with whom you may want to discuss particular questions or concerns:

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